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ABSTRACT

Behavioral observations have the advantages of being direct, tangible, and informative as to the contextual determinants of behavior. Considerable evidence exists that a three-dimensional structure gives meaning to many child behaviors in a variety of life settings. Three bipolar dimensions constitute this framework: introversion vs. extroversion, love vs. hostility, and task orientation vs. distractibility. This approach has been used for ordering observational data collected for the ETS-Head Start Longitudinal Study. The emphasis so far has been on the motivational, affective and social aspects of observational data. But relationships between personal-social behaviors and independently measured cognitive processes will be explored in the longitudinal sample. The question of qualitative shifts in behavior between correlated adjacent constructs within a configuration rather than on orthogonal bipolar dimensions is also being explored. Findings to date suggest that shifts within the structure roughly follow the principle of structural proximity and that such change is directed toward the more desirable locations within the configuration. A more sophisticated system of mapping persons into the configuration within life contexts is needed. This could yield insights into personality development. This discussion applies to observations within a rather narrow age span, since the underlying meanings of observational data become increasingly under the control of deeper cognitive structures. (KM)

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Some Theoretical Advantages of Behavioral Observations: Illustrations from a Longitudinal Study*

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Observational data have great appeal because they are so direct. If we can observe the child's interactions in everyday settings, we can avoid more indirect methods such as tests and interviews where validity is often in doubt. Observations also are tangible; you can point to them operationally even when their units are refined and esoteric. Because observations are tied to settings, they provide insights on the contextual determinants of behavior. As anthropologists, ecologists, and ethologists have emphasized, a psychology of context-free behavior can only be an impoverished psychology. Comparative analysis of behavior across contexts has opened up a vast and exciting new territory for psychological investigation.

It is no secret that this approach has been largely exploratory and methodological, and is still struggling to get its theoretical bearings. One theoretical issue concerns the meaning of our behavioral observations - their placement within a larger framework of psychological constructs. At one time some believed that the question of behavioral meaning was resolved by operationalism. If you could define a category of behavior operationally, the only other question was whether the category entered into functional relationships with other theoretically derived constructs. However, we have learned

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the hard way that all operationally defined behaviors have surplus meaning. They must, since single behaviors are not unidimensional. It is the multidimensional character of any unit of behavior which forces us to go beyond operationism and to search for the underlying structure of a behavioral domain.

There is now considerable evidence, building on the work of Schaefer, that a three-dimensional structure gives meaning to many child behaviors in a variety of life settings. This framework can be defined broadly by three bipolar dimensions: introversion vs. extraversion; love versus hostility, and task-orientation vs. distractibility. The ten or more psychological constructs generated by the first two of these dimensions often are described as a circumplex, since their intercorrelations are ordered in a circular fashion. The remarkable thing is despite the proliferation of factor analytic methodologies, most studies have produced essentially the same configuration of personal-social behaviors. Even when great pains are taken to allow for more dimensions to emerge, it is usually found that factors can be ordered within the three-dimensional space.

It is important to distinguish between a dimensional approach and a configurational approach. Dimensional analyses attempt to reduce many observations to a small number of dimensions. From a theoretical standpoint, however, a three-dimensional model is used to locate behavioral items or constructs within a structure which defines their meaning. In this way we can maintain subtle but psychologically important distinctions among correlated behaviors, such as compliance and submissiveness, or sociality and affection, without losing sight of their ordered relationships within the overall configuration.

This approach has been very useful for ordering observational data collected as part of the ETS- Head Start Longitudinal Study. Our sample consisted of over 500 economically disadvantaged urban preschoolers, 80% of whom were black. Pairs of trained observers made simultaneous classroom observations on each child for a period of about 30 minutes while the child engaged in "free play." Observer pairs then independently rated the child on a large number of scales. Some of these scales were bipolar and global, such as "Withdrawn Vs. Involved," "Constructive Vs. Destructive," and "Purposeful Vs. Aimless." Other scales were approximate frequency counts of discrete behaviors observed during the 30-minute period, including approval-seeking, imitation, smiling, aggression, and specific classroom activities. Also of interest was a distinction between behaviors directed toward adults versus peers. A total of 21 bipolar scales and 127 discrete behavioral items were used, most of which were incorporated into structural analyses. Each child was observed and rated at least twice during the school year; first in the Fall, and again in the Spring. These repeated measures were taken to detect stability and change during the child's first year of school experience.

Raters were recruited from the study communities themselves, and typically were housewives with high school educations. They participated in intensive two-week training sessions prior to actual data collection, and their work was closely monitored by study staff. Interrater reliabilities were assessed throughout the period of data collection, and averaged .63 on the bipolar scales and .74 on the more discrete behavioral items.

Eight subgroups were formed, based upon the child's sex, a dichotomous breakdown for child age at the time of measurement in the Fall, and Fall Vs.

Spring periods of measurement. Structural analyses yielded a three-space that was replicated across all eight subgroups. The first two dimensions defined the well-known circumplex, as seen in Table 1 of the handout. The third dimension was task-orientation, which we have contrasted with "Person Orientation," to which it was orthogonal. These relationships are seen in Tables 2 and 3 of the handout.

One way to evaluate the robustness of a reference frame is to introduce a new distinction and then see if it determines additional dimensionality. We did this for the distinction between adults and peers as targets of the child's behavior. As can be seen in Table 2, an Adult Orientation was associated with Autonomous Achievement, Cognitive Activity, Fine Manipulative Activity, and Artistic Activity. On the other hand, Child Orientation was associated with Gross Motor Behavior and Fantasy Activity. Most striking, (Table 3) Child Orientation but <u>not</u> Adult Orientation was associated with the construct "Sociable" on the Circumplex. In other words, social interactions with adults were primarily in the service of meeting task demands and solving problems, whereas social interactions with peers were in the service of the interpersonal relationship itself - a more pure form of affiliation with accompanying expressions of both positive affect and assertive controlling tendencies. With regard to the question of structure, the fact that the adult vs. peer distinction was so readily mapped into the three-space suggests that this distinction is subordinated to more basic meanings during this age period.

This discussion is by no means intended to close off the possibility of additional dimensionality in observational data on social behavior. Obviously, many important conceptual distinctions have been built into observational schemes, and others will be in the future. Analyses of

dyadic interaction chains, for example, provide a rich opportunity for understanding the underlying meaning of the child's behavior. The question remains, however, whether our conceptual distinctions will yield more complex dimensionality or simply more fine-grained measures of the same old dimensions. This is always an empirical matter, but an important one that needs to be checked out in each case. When we ignore the broad anchoring points, we risk invoking very specific interpretations of molecular outcomes when in fact a much more general dimension of meaning is involved.

Of course, I have been discussing primarily the motivational, affective, and social aspects of observational data rather than linguistic or cognitive processes and structures, which undoubtedly are more complex. We are very interested in relationships between personal-social behaviors and independently measured cognitive processes, and are about to explore this question in our longitudinal sample.

In these and other future studies of mediating and antecedent factors, we will follow up on an interesting lead suggested by the configurational approach. Consider the fact that an <u>individual</u> as well as a behavioral construct can be located within the three-dimensional configuration. We observe that a particular child's behavior is predominantly "sociable" within a given context, say that of preschool "free play." The usual process question then is: "What antecedent and concurrent factors influence this child and others like him to be more sociable in this context than many other children?" From a configurational standpoint, however, this is the wrong question. If we consider this child's profile on the other constructs within the configuration, we will probably find a fall-off gradient ordered by the circumplex arrangement of constructs. For example, it is likely that the sociable child will receive higher scores on "Loving and Assertive" than on the other constructs. This descriptive fact suggests a somewhat different

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"process" question. Rather than asking why some children are more sociable than others, we ask more refined questions: "Why are some children more sociable than loving or more sociable than assertive?" More important, we ask about the child's location in the structure before he becomes predominantly sociable. This question deals with qualitative shifts in behavior between correlated adjacent constructs within the configuration rather than with behavioral changes on orthogonal bipolar dimensions. It has been suggested by Foa that behavioral changes are ordered by a principle of structural proximity. In line with this reasoning, we hypothesize that the circumplex gradient defines a major pathway of behavioral change. It is not the only pathway, however, since the orthogonal dimension of Task Orientation creates a number of alternatives. As Block has suggested, there could well be multiple pathways for personality change.

We are just beginning to explore this conception of behavioral change in our longitudinal study of economically disadvantaged children. Our initial findings are encouraging, although they are not yet sufficiently complete to provide more than suggestive evidence. You will recall that we took repeated measures on children's free-play behaviors in the Fall and in the Spring, and that the same configuration applied to both age periods. Since we have measures on each of the 10 circumplex constructs listed in Table 1 of the handout, it was possible to correlate children's construct scores across the two time periods. As seen in Table 4 of the handout, younger girls in the sample who were Sociable in the Fall tended to be Sociable in the Spring, although this stability correlation of .33 was rather low. (Of course, when there is systematic behavioral change among constructs within the configuration, the stability coefficient for a given construct is thereby lowered.) The interesting findings is that children who were more Sociable in the Fall tended to become

more Assertive in the Spring. This can be seen from the correlation of .44 in the first column of Table 4. Moreover, this shift on the circumplex was reflected throughout the ten measures. In short, these children had shifted one position along the circumplex-ordered gradient.

The second column of the table provides a check on this interpretation. For these correlations the predictions are reversed in time, from Spring-to-Fall. If the circumplex-ordered Fall-to-Spring shift were simply a statistical artifact, then the same shift should occur when the temporal prediction is reversed. As seen in Table 4, this was not the case.

While our evidence is not yet very strong, findings to date do suggest that such transformations within the structure roughly follow the principle of structural proximity. We plan to relate such shifts to children's antecedent and concurrent experiences within and outside the classroom. However, we have already learned that the proper dependent variables for these process explanations are not orthogonal dimensions of behavior; rather they are gradients defined by the natural orderings of constructs within the configuration.

The principle that behavioral change is ordered according to structural proximity is neutral with regard to the direction of such change. However, our findings to date indicate that such change is directed. In general, children in our sample moved toward the more desirable locations in the configuration; for example, toward greater social outgoingness and toward greater task involvement. A dramatic example of this trend was found when we compared children measured early in the Fall with those measured in late Fall and early Winter. Those children observed later in the Fall were significantly more cooperative than those measured earlier in the Fall, and this change was perfectly reflected on all circumplex-ordered constructs.

This finding comes as no surprise in view of the adaptive changes known to occur during the first few months of preschool. As a matter of fact, this outcome raises the fundamental question of whether behavioral changes within the structure should properly be viewed as "situationally adaptive" or whether they can also be viewed as "developmental" in a more basic sense.

In dealing with this question, it should be noted that the three-dimensional configuration is a way of sorting out behavioral meaning within a given context. Whether a child will be located at about the same place in the configuration across contexts, say in the classroom, playground, and home, is always an open empirical matter. This question often is wrongly assumed to bear on the "validity" of measurement. Theories of personality development rarely assume that personality is context-free, although personality measurement often has been trapped by this assumption. Situational variations in personality describe differentiated components of the personality. Consequently, efforts to "validate" personality constructs by showing that they correlate highly across differentiated contexts are not only likely to fail, they also mask important personality x situation interactions which define individual differences in personality.

From the standpoint of personality development, then, the important questions concern differentiation and generalization of behaviors across different contexts. What is called for is a more sophisticated system of mapping persons into the configuration within each of these life contexts. By charting an individual's behavioral changes within each of several contexts, we also achieve a basis of comparison which could yield insights on personality development. You can now see why I suggest that a sharp distinction between

situational adaptation and personality development may be misleading. Adaptation to a particular context is just one sign whose developmental implications can be known only when compared to the child's behavior in other settings. For example, consider the child whose early home experiences have discouraged his active and sustained engagement with the cognitive tasks so often found in preschool settings. Assuming for the moment that such a child were to become increasingly task-oriented within the classroom during the preschool year, would such behavior tend to generalize back to the home? If that route is blocked, would other life contexts provide some opportunity for such generalization to occur? Is it necessary for such generalization to occur within some minimal number of contexts before personality becomes consolidated at a certain level. Are certain contexts especially salient for the individual because they facilitate the first thrust of personality change beyond the individual's currently typical level? While we do not yet know the answers to these longstanding issues, their resolution seems possible through use of observational data at successive ages on the same subjects in multiple contexts.

In conclusion, you will note that I have been discussing successive behavioral observations within a rather narrow age span. When one turns to longer age spans, as Baumrind is attempting to do, the major issue is this: When the child is young, we are confident that the principles governing behavioral variations among contexts can be deciphered by us, but we mistrust the child's own interpretations of his behavior due to limited linguistic, symbolic, and information-processing skills. As the child develops, however, we may find it increasingly difficult to

identify the more salient contexts in which to observe, and now we also want to know the meaning of contextual variations from the child's own perspective. How do we reconcile this shift in our aims as behavior observers? Obviously, the underlying meanings of observational data shift with age because behavior becomes increasingly under the control of deeper cognitive structures. These cognitive shifts will therefore need to become part of our language for deciphering the rules of inter-situational differentiation and generalization. In short, our inferential networks for observational data must connect motivational with cognitive structures in ways that take account of the developmental status of each.

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Table 1

Mean Subgroup Intercorrelations for Circumplex Ordered Construct Measures

Construct	No.	1	2	3	4	5	6	7	8	9	10
Sociable	1		.61	.32	.04	.03	-.23	-.66	-.46	-.11	.47
Loving	2	.61**		.45	.20	.12	-.20	-.70	-.59	-.22	.50
Cooperative-(Interpersonal)	3	.32*	.45**		.44	.07	-.18	-.56	-.46	-.10	.37
Cooperative (Impersonal)	4	.04	.20	.44**		.30	.12	-.17	-.35	-.34	.00
Compliant	5	.03	.12	.07	.30*		.43	.05	-.25	-.60	-.26
Submissive	6	-.23	-.20	-.18	.12	.43**		.36	.02	-.37	-.58
Withdrawn	7	-.66**	-.70**	-.56**	-.17	.05	.36**		.50	.04	-.59
Distrusting	8	-.46**	-.59**	-.46**	-.35**	-.25*	.02	.50**		.33	-.29
Defiant-Hostile	9	-.11	-.22*	-.10	-.34*	-.60**	-.37**	.04	.33*		.19
Assertive	10	.47**	.50**	.37**	.00	-.26*	-.58**	-.59**	-.29*	.19	

*$p < .001$ (two-tailed) in at least four out of eight subgroups.

**$p < .001$ (two-tailed) in at least seven out of eight subgroups.

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Table 2

Mean Subgroup Intercorrelations on Task Vs.
Person Orientation Measures

Construct	No.	11	13	14	15	16	12	17	18
Adult Orientation	11								
Autonomous Achievement	13	.30*							
Cognitive Activity	14	.29*	.26						
Fine Manipulative Activity	15	.20	.40**	.23					
Artistic Activity	16	.26	.20	.06	.06				
Child Orientation	12	.09	.19	.09	-.03	-.02			
Gross Motor Behavior	17	.02	-.02	-.08	-.29*	-.06	.29*		
Fantasy Activity	18	-.02	.06	-.07	-.13	-.09	.37**	.19	

Table 3

Mean Subgroup Correlations Between the Circumplex and
Task Versus Person Orientation Measures

		Circumplex									
Task Orientation	No.	Sociable 1	Loving 2	Coop.-Int. 3	Coop.-Imp. 4	Compliant 5	Submissive 6	Withdrawn 7	Distrusting 8	Defient-Hostile 9	Assertive 10
Adult Orientation	11	.11	.18	.07	.06	.08	-.11	-.21	.04	-.07	.19
Autonomous Achievement	13	.00	.17	.35**	.36*	.03	-.09	-.18	-.10	-.14	.20
Cognitive Activity	14	.00	.09	.07	.13	.05	-.12	-.08	.05	-.05	.09
Fine Manipulative Act.	15	-.12	.00	.10	.27	.07	.02	-.01	.05	-.08	-.01
Artistic Activity	16	.02	.05	.10	.13	.01	-.06	-.07	-.04	.00	.10
Person Orientation											
Child Orientation	12	.51**	.39**	.19	.05	.06	-.15	-.42**	-.19	-.17	.31*
Gross Motor Behavior	17	.31*	.21*	.09	-.15	-.09	-.14	-.28*	-.14	.05	.23
Fantasy Activity	18	.28*	.23*	.15	-.03	-.08	-.22	-.33*	-.10	.01	.25

*$p < .001$ (two-tailed) in at least four out of eight subgroups.

**$p < .001$ (two-tailed) in at least seven out of eight subgroups.

Table 3 4

Fall x Spring Correlations for Sociable Behavior in Younger Girls (N = 140)

Construct	Fall → Spring	Spring → Fall
Sociable	.33*	.33*
Loving	.21	.24
Cooperative-Interpersonal	.11	.30
Cooperative-Impersonal	.00	.14
Compliant	-.13	-.06
Submissive	-.24	-.15
Withdrawn	-.34	-.24
Distrusting	-.12	-.24
Defiant-Hostile	.03	.08
Assertive	.44	.22

*Stability Coefficient